

Predictive Model for Tech 5 CO: Oxygen Interactions

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CO Tech 5 Draft Model

- Tech 4 and 5 Terms: RV, SU, OX, OL, AR. T5, T9. T5T9, SUSU, OXOX, T5AR, T9OL, T9T9
- Tech 5 Adjustment Terms: I5, J5OXOX, M5T9
- I5 = Tech 5 Indicator (=1 if Tech 5, else 0)
- J5 = Indicator for AAMASUOXY, CRC_E67, EXXONMOBIL, TOYOTA
- M5 = Indicator for CRC_E67

Tech 5 OX Terms

- ARB allows J5OX and J5OXOX as candidate terms
- J5OX is a 2-factor interaction (linear oxygen effect on Tech 5)
- J5OXOX is a 3-factor interaction containing J5OX (quadratic oxygen effect on Tech 5)
- Standard theory: Should not include higher order terms in a model without lower order terms contained inside them
- Standard theory: Should not model curvature if no linear effect is found
- Stepwise procedure starts with linear terms and then considers interactions

Alternative Models

J5 OX Terms	P-values	% Change in CO for oxygen 2- 3.5 %)	Comment
J5OXOX	0.004	1.4	ARB
J5OX, J5OXOX	0.14, 0.002	3.9	Max AIC, Likelihood
J5OX	0.34	10.0	Test linear term
None		8.0	Stepwise Model